



Newsletter

Volume 5, Number 2
March - April 1988

At the Arboretum

We welcome the first signs of spring to the Perennial Garden. The Education Program offices overlook the garden, and it is exciting for us to watch the growth of so many species of plants ... at this time of year there is something new almost every day. During spring and summer the IES Newsletter will list some of the flowers, shrubs and special beds that will be at their peak over the coming weeks. We hope you will visit often.

The IES Newsletter is published by the Institute of Ecosystem Studies at the Mary Flagler Cary Arboretum. Located in Millbrook, New York, the Institute is a division of The New York Botanical Garden. All newsletter correspondence should be addressed to the Editor.

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Institute Staff Share Expertise

Economic growth and development bring challenges to those concerned with maintaining environmental quality. To face these challenges in a rational and knowledgeable way, local, state and federal governments seek advice and guidance from citizen's groups. These groups look for interested and informed members of the community, willing to do hard work and able to provide expertise. IES staff members contribute their efforts to environmental groups, and, in some cases, form their own problem-solving committees. Following are some highlights of this behind-the-scenes work in sharing our knowledge.

Issue: Environmental Quality

IES Director Gene E. Likens is a member of Governor Mario M. Cuomo's *Environmental Advisory Board*. This group meets with the Governor several times a year to advise him on environmental matters. Dr. Likens has twice briefed Governor Cuomo on acid rain issues.

The *New Paltz Environmental Conservation Commission* is an arm of the town government. IES Aquatic Ecologist David L. Strayer, a resident of New Paltz, recently joined this group. The commission advises the town government on environmental issues including proposed housing developments, solid waste and recycling, and wetland protection. The commission also manages a hiking trail, and oversees a townwide tree-cutting ordinance.

In October 1987, Institute scientists hosted Nicholas A. Robinson, Professor of Law and Director of the Center for Environmental Legal Studies at Pace University; Dr. Richard L. Ottinger, Professor of Law, Pace University; and Thomas C. Jorling, Commissioner, New York State Department of Environmental Conservation. The purpose was an open discussion of IES research as it relates to public policy issues. The dialogue will be continued with relevant members of the Department of Environmental Conservation staff.

Issue: Landfill Siting

John S. Eaton, Gene E. Likens and Gary M. Lovett are members of the *Dutchess County Environmental Management Council (EMC) Roundtable*. The Roundtable was formed in fall 1986 when the Resource Recovery Agency and the Department of Solid Waste Management issued a report that listed potential landfill sites in northern Dutchess County. The purpose of the group was to consider the problems and offer solutions regarding the report. IES was invited to provide representation to the group, and the three ecologists joined approximately 50 legislators and individuals from local and state environmental, conservation and special interest groups. An early

achievement: acting on the group's recommendations, the Resource Recovery Agency decided to reject an inadequate consulting report and hire a qualified consulting firm to do a generic environmental impact statement on the landfill issue, including proposed sites. The Roundtable's work also forced the county to take a serious look at recycling as an alternative, and the Resource Recovery Agency is redoubling its efforts in public education with regards to recycling.

Issue: Open Spaces

Alan R. Berkowitz, Gene E. Likens, Mark J. McDonnell, Joseph S. Warner and Raymond J. Winchcombe helped to review the *Town of Washington Master Plan* with an eye toward ensuring that an ecological perspective be provided regarding the town's natural areas and open spaces. A questionnaire distributed by the Washington Master Plan Committee indicated that local residents are interested in preservation of rural land and the IES ecologists urged that an inventory of the town's natural areas be top priority.

IES Plant Ecologist and Town of Stanford resident Gary Lovett serves on the *Stanford Conservation Advisory Commission*. This citizen's group discusses and makes recommendations on local environmental issues and studies some of Stanford's critical environmental areas, but its first goal is to prepare an open space index and inventory. When completed, the findings and recommendations will be presented to the Town Board to be reflected in Stanford's Master Plan. Each member of the commission has leg work to do, to contribute as much knowledge as possible about the land. As a citizen who happens to be an ecologist, Dr. Lovett applies his general scientific background to the questions at hand; his assignment is to inventory prime agricultural soils and current farm uses, and to gather maps of the town's water bodies.

The *Dutchess Land Conservancy* works to preserve open space, agriculture and rural character in the Hudson Valley in general and in Dutchess County and surrounding counties in particular. IES Agricultural Ecologist Alan Berkowitz was elected to the Conservancy's Board of Directors in October 1986 and to the Board's Executive Committee in October 1987. The Conservancy achieves its goals by encouraging people to place conservation easements on their land, by advising groups and agencies about land use planning, and through education. Some of this public education is accomplished through special courses and workshops in the Institute's Adult Education Program.

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Environmental Expertise, from page 1

Legislation has been proposed by the Regional Planning Association to consolidate and preserve the string of public and private parks, historical landmarks and other open spaces that interconnect along the Hudson River. Terrestrial Ecologist Mark J. McDonnell is the Institute's contact with this *Hudson River Greenway* project.

Issue: Environmental Law

A course in 'Scientific and Technological Issues in Environmental Law' at Pace University in White Plains draws the expertise of Stuart E.G. Findlay, Gene E. Likens, Mark J. McDonnell and Michael L. Pace. These IES scientists speak on ecology and relevant environmental problems, each focusing on his specific area of interest -- streams, acid rain, forests and lakes, respectively -- to give students the background they need to make informed judgements. Institute scientists are also working closely with Nicholas A. Robinson, Professor of Law and Director of the Center for Environmental Legal Studies at Pace, on various science and policy issues.

Issue: The Hudson River Ecosystem

In 1987 a law was passed creating an Estuarine District covering the Hudson River. The Department of Environmental Conservation (DEC) therefore must create a management plan for the district. The *Hudson River Estuary Management Advisory Committee*, formed to develop this plan, is made up of eighteen individuals -- commercial fishermen, environmentalists, representatives of utility companies -- including IES Aquatic Ecologist Stuart E.G. Findlay who was invited to join by Thomas C. Jorling, Commissioner of the New York State DEC. A draft management plan has been submitted to Commissioner Jorling who will in turn submit it to the New York

State Legislature. The next step is the implementation of a 15-year estuarine management program for the river. The committee convenes monthly in New Paltz, and also meets with Commissioner Jorling annually to address current issues such as New York City's proposal to withdraw water from the Hudson River, PCB dredging and residential and marina development.

Issue: "Nuclear Lake"

In 1972, an explosion at a laboratory doing research on nuclear fuels resulted in nuclear contamination at a small artificial lake in Pawling, New York. After decontamination, the property was purchased by the National Park Service, and the Appalachian Trail was rerouted through it. IES Aquatic Ecologist David L. Strayer joined a citizens advisory committee to ensure that the site would be used in a safe way. The committee evaluated the situation and made recommendations; signs and brochures now warn of the property's history.

Issue: Pests

The *Dutchess County Environmental Management Council Gypsy Moth Task Force* was established by the Dutchess County Executive during the last gypsy moth outbreak approximately 8 years ago. Its purpose was to deal with the problem and to develop an education program to advise local residents on what they could and could not do to combat the insect pest. Clive G. Jones, a chemical ecologist at IES doing research on insects, was one of approximately twenty people in the group. The last gypsy moth outbreak was in 1981, and the Task Force will regroup when the next outbreak occurs.

Issue: Beautification

Bradley Roeller, manager of the Arboretum's display gardens, serves on the *Village of Millbrook Beautification Committee*. The purpose of this committee

is to make recommendations as to areas its members feel could be beautified. To accomplish this, the members serve as consultants on local projects -- development of new properties, restoration, work in any open village space -- so that their suggestions can be incorporated into the work. The *Town of Washington Beautification Committee*, on which Mr. Roeller also serves, has a similar role. Finally, Mr. Roeller is a member of the *Shade Tree Commission*. Millbrook is part of Tree City U.S.A., and certain considerations regarding tree plantings must be followed. The Commission inspects trees on all Village properties and recommends tree plantings along streets. A number of these trees are donated by the Arboretum.

Issue: IES Recycling

IES has recently begun its own program to recycle paper products, glass and aluminum. Each staff member has his or her own box for recyclable waste paper, and willingly peels labels off cans and bottles to prepare those items for recycling. Furthermore, because of the harmful effects of the byproducts of the styrofoam manufacturing process on the ozone layer, the Institute is no longer purchasing styrofoam products. The recycling effort began at the Gifford House Visitor and Education Center under the leadership of Kass Hogan, IES program leader in ecology education, and is now coordinated on an Institute-wide level by research assistants Jean Hubbell, Ben Peierls and David Lints. Copies of the Dutchess County Resource Recovery Agency booklet "Recycling Is Returning" are available at the Gifford House, where visitors will also enjoy looking at a special illustrated guide about the Institute's recycling program.



This was an excellent spring for maple sugaring, not only for the trees, which produced sap generously during the cold nights and warm days of early March, but also for the Institute's maple sugar ecology program. During the weeks of March 7th and 14th, 19 groups of 3rd, 4th and 5th graders from local schools participated in separate 90 minute programs led by Lauren Parmelee. The students and their teachers moved through the four seasons, touring a "sugar factory" -- the maple leaf -- and then meeting "Buddy", a 7-foot tall fiberglass maple tree. Buddy, designed and built by IES Research Displays Coordinator Laury Zicari, had trap doors, leaf buds and green (reverse-to-yellow) felt leaves to explain the mysteries of changing seasons and the related processes of energy production and storage in the trees. In

the sugarbush behind the Gifford House field, a giant mouse appeared. An eco-detective, this mouse wanted to learn the identity of a particular woodland creature and asked the students to help solve the mystery by working out ecological clues; six of the students helped by playing the roles of animals that live in maple forests. When the culprit had been identified the mouse retreated into the sugarbush. The students then tasted sap fresh from the maple before carrying buckets of it up to the evaporator by the Gifford House barn. The program ended with warm maple syrup over popcorn, and a piece of fresh maple candy. Left: Fourth grade students from Hyde Park Elementary School with the Arboretum's eco-detective and the maple sugar program's leader Lauren Parmelee.

New Staff



GLYN CLOYD

VICKY KELLY, research assistant II, helps Plant Ecologist Dr. Charles Canham in the design and execution of a project to monitor plant communities along utility rights-of-way. Ms. Kelly attended San Francisco State University where she earned a bachelor's degree in botany and a master's degree in ecology and systematic botany.

ANTHONY E. RESTAINO, research assistant II, has a bachelor's degree in meteorology from Lyndon State College and a master of science degree in atmospheric science from the State University of New York at Albany. Recently hired by IES Laboratory Manager John Eaton, he is using his special skills in the operation and maintenance of the Institute's Air Quality/Meteorological Stations and in meteorological data analysis and management. (Incidentally, Mr. Restaino will be providing the data for the "Local Weather" articles now appearing in each issue of the NEWSLETTER.) He is also in charge of the operation, maintenance and record-keeping of stream flow instruments and data in connection with long-term monitoring of the East Branch of Wappinger Creek.



GLYN CLOYD

MICHAEL J. RUZICH, JR., research assistant I, analyzes water samples, primarily those from the Hubbard Brook Ecosystem Study in New Hampshire, in the IES inorganic chemistry lab. Mr. Ruzich has a bachelor's degree in biology with concentration in ecology from Cornell University, and is working for Laboratory Manager John Eaton.



GLYN CLOYD



GLYN CLOYD

BARBARA MANNING, part-time receptionist, greets visitors to the Plant Science Building on weekday mornings. Her other duties include operating the switchboard and office support as needed. She was educated at the University of British Columbia, and before moving to Dutchess County two years ago was assistant to the director of the La Napoule Art Foundation in France.

Local Weather

The IES Weather Station is located behind the research field at the Arboretum. Data collected here not only provide background information for ecological research at the Institute but also serve as a standard against which long-term trends in weather and air quality are compared.

In response to our reader's requests, we will report recent weather data in each issue of the IES Newsletter.

January and February, 1988

Highest temperature:

14.2 °C (58 °F) on January 31

Lowest temperature:

-27.1 °C (-1 °F) on January 15

Number of days temp. fell to -17.8 °C (0 °F) or lower:
11

Precipitation:

15.05 cm (5.93 in.)

Average rainfall pH¹:

4.49

Strongest wind gust:

47 km/hr (29 m.p.h.) from the West-Northwest on January 6

Average wind direction:

Southwest (224°)

Average wind speed:

11 km/hr (7 m.p.h.)

1. Degrees of acidity or alkalinity are indicated using a logarithmic pH scale. On the scale of 0-14, vinegar -- an acid -- is approximately 3 and "neutral" is 7.0. The pH of "normal" rain is 5.6 or higher. Rain

and snow at the Arboretum have ranged in pH from 3.31 to 5.67 during the past year.

Extended Hours

So that visitors to the Mary Flagler Cary Arboretum can better enjoy our outdoor attractions, we have extended Arboretum hours for visitors from May 1 through September 30:

Monday - Saturday	9 a.m. to 6 p.m.
Sunday	1 p.m. to 6 p.m.

The Greenhouse will continue to close at 4 p.m. The Gift Shop will stay open until 5 p.m. Visitor permits are required for access to all areas and are available free of charge at the Gifford House until 5 p.m.

While we're on the subject of visitor permits, regular visitors will note that we have a new system -- one that we hope will be much more efficient. At the Gifford House, each visitor is given a ticket stamped with the date. Separate dated tickets are used for vehicles. No longer are visitors asked to fill out permits in triplicate, and those who wish to be added to our mailing list can do so by means of special postcards.

Perennial Garden Highlights

April - May - June

The Perennial Garden at the Gifford House Visitor and Education Center was dedicated in June 1987. With 800 different species and cultivars, this garden exhibits the largest collection of herbaceous perennials to be seen in any public garden in the northeastern United States -- almost 4,500 plants in all.

After a long winter of dormancy, the perennials are starting to celebrate spring. The garden will continue to grow, bloom and attract visitors until well into fall. Following are a few of the highlights visitors can expect to see during the spring:

- Late-April *Pulmonaria saccharata* (Lungwort)
'Highdown' and 'Mrs. Moon' cultivars
Primula vulgaris (Primrose) 'Bluten Kissen'
Primula sieboldii (Primrose) 'Geisha Girl'
Bergenia ciliata (Winter Begonia)
Epimedium species
Annual beds: Tulips and Daffodils
- Mid-May *Rhododendron* species and cultivars in white, yellow and shades of pink and purple
Syringa (Lilacs) ... many cultivars
Geranium species
Chrysogonum virginianum (Golden Star)
Amsonia tabernaemontani (Blue Star)
Polygonatum odoratum (Solomon's Seal)
'Variegatum' and 'Falcatum'
Phlox species (Creeping Phlox), and cultivars
Iris cristata (Dwarf Iris)
- June *Paeonia* (Peony) 'Burma Ruby', 'White Innocence', 'June Brilliant', 'E.G. Hill', 'Many More'
Papaver (Poppy) 'White King', 'Raspberry Queen', 'Helen Elizabeth', 'Carnival', 'Bonfire'
- Mid-to late-June *Astilbe* species and cultivars
Aruncus dioicus (Goat's Beard)
Lamium maculatum 'Beacon Silver'
Iris sibirica 'Ottawa' and 'Skywing'
Rose bed
Hosta bed
Asian/North American bed
Herb bed

Spring Calendar

SPECIAL WORKSHOPS

- May 7th: Ecological Design and Landscape Restoration
Presenter: Carol Franklin, Associate Professor of Landscape Architecture and Regional Planning, Univ. of Pennsylvania, and Partner, Andropogon Associates
- May 14th: Planting and Transplanting Trees and Shrubs
Presenter: Bradley Roeller, Manager of Grounds and Display Gardens, Institute of Ecosystem Studies
- May 25th: Airphoto Interpretation and Land Use: An Introduction to Basic Techniques.
Presenter: Dr. Stephen D. DeGloria, Associate Director, and Arlynn W. Ingram, Principal Airphoto Interpreter, Cornell Laboratory for Environmental Applications of Remote Sensing (CLEARS), Cornell Univ.

For registration information, visit the Gifford House on Route 44A, or call the Education Program Office at the number below.

ECOLOGICAL EXCURSIONS

A few spaces remain for the IES excursion to The Garden in the Woods, the botanical garden of the New England Wild Flower Society in Framingham, Massachusetts. This day-trip will depart the Gifford House at 7:30 a.m. on Thursday, June 9th, and return at approximately 8:30 p.m. Bradley Roeller, Manager of Grounds and Display Gardens, will lead the trip. Call the number below for more information, or to register. Deadline: May 25th.

SUNDAY ECOLOGY PROGRAMS

Free public programs are offered on the first and third Sunday of each month. All programs are from one to two hours long, and begin at 2:00 p.m. at the Gifford House on Route 44A unless otherwise noted.

Tentative schedule (please call (914) 677-5358 to confirm the day's topic):

- May 1: The Fish of a Small Woodland Stream (David Strayer) - Walk
May 15: How Plants Defend Themselves (Clive Jones) - Walk
June 5: A Stream Walk (Stuart Findlay) - Walk
June 19: Current Status of Lyme Disease (Jay McAninch) - Talk and Demonstration
For ecology walks, wear long pants and sturdy,

waterproof footwear with socks; long-sleeved shirts or jackets are also recommended. In case of inclement weather, call (914) 677-5358 after 1 p.m. to learn the status of the day's program.

GREENHOUSE

The IES Greenhouse performs double duty: it is a year-round tropical-plant paradise as well as a site for controlled environmental research. The public is invited to explore both aspects during Arboretum hours. There is no admission fee, but visitors should first stop at the Gifford House for a free permit.

SCIENTIFIC SEMINARS

The Institute's weekly program of scientific seminars features presentations by visiting scientists or Institute staff. All seminars take place in the Plant Science Building on Fridays at 3:30 p.m. Admission is free. For a schedule, contact Julie Morgan at (914) 677-5343.

ARBORETUM HOURS

May 1 - September 30: Monday through Saturday, 9 a.m. to 6 p.m.; Sunday 1 p.m. to 6 p.m. The Gift and Plant Shops are open Tuesday through Saturday 11 a.m. to 5 p.m. and Sunday 1 - 5 p.m. October 1 - April 30: Monday through Saturday, 9 a.m. to 4 p.m.; Sunday 1 - 4 p.m. The Gift and Plant Shops are open Tuesday through Saturday 11 a.m. to 4 p.m., and Sunday 1 - 4 p.m. (The Greenhouse and Plant Science Building continue to be closed to visitors at 4 p.m. during summer hours.) Closed on public holidays. (Also closed during the deer hunting season and when roads are snow-covered.) All visitors must obtain a free permit at the Gifford House for access to the Arboretum. Permits are available up to one hour before closing time.

MEMBERSHIP

Become a member of the Mary Flagler Cary Arboretum. Benefits include a special member's rate for IES courses and excursions, a 10% discount on purchases from the Gift Shop, six issues of the IES Newsletter each year, free subscription to *Garden* (the beautifully illustrated magazine for the enterprising and inquisitive gardener), and parking privileges and free admission to the Enid A. Haupt Conservatory at The New York Botanical Garden in the Bronx. Individual membership is \$25; family membership is \$35. For information on memberships, contact Janice Claiborne at (914) 677-5343.

For more information, call (914) 677-5358 weekdays from 8:30 - 4:30

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